$4s=8\pi(1+\frac{1}{9}-\frac{1}{18}-\frac{5}{729}-\frac{875}{104976}-\frac{7}{3888}-\frac{847}{472392}-\frac{530053}{119042784}-\ldots\ldots)$.

$4s=26.0104$ exact to two decimal places.

Also solved by *F. P. Matz*, and *J. F. W. Scheffer*.

PROBLEMS.

30. **Proposed by R. J. ADCOCK, Larchland, Illinois.**

When the sum, of the distances of a point of a plane surface, from all its other points, is a minimum, that point is the centre of gravity of the plane surface.

QUERIES AND INFORMATION.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

"The Mysterious Formula."

Referring to my article on "Logarithms of Negative Numbers" published in the April Number, Vol. I., Mr. C. D. Schmitt, on page 214, deduces the following singular result: $\pi=\dfrac{\log(-1)}{\sqrt{-1}}$.

Another very remarkable result can be deduced from this as follows:

Dividing by 2, we have $\dfrac{1}{2\sqrt{-1}}\log(-1)=\frac{1}{2}\pi$. This may be written $\log\sqrt{-1}^{-\sqrt{-1}}=\frac{1}{2}\pi$. $\therefore\ \sqrt{-1}^{-\sqrt{-1}}=e^{\frac{1}{2}\pi}=4.810477381.$ This is what Professor Benjamin Peirce in his linear Associative Algebra, p. 5 (edition published by D. Van Nostrand), calls "the mysterious formula."

Writing i for $\sqrt{-1}$, the formula is $\dfrac{1}{i^i}=\sqrt{e^\pi}$.

M. C. STEVENS.

Editor Finkel has notified me that he cannot spare the space for further discussion of the possibility of a root of the equation $4+\sqrt{(x-4)}-\sqrt{(x+4)}=0$. I will therefore again refer Mr. Draughon to Mr. Horner's article in the Philosophical Magazine, and also to Wentworth's Algebraic Analysis, page 278 to page 286.

H. C. WHITAKER.

The International Mathematical Congress.

Professor A. Vasiliev, President of the Physico-mathematical Society